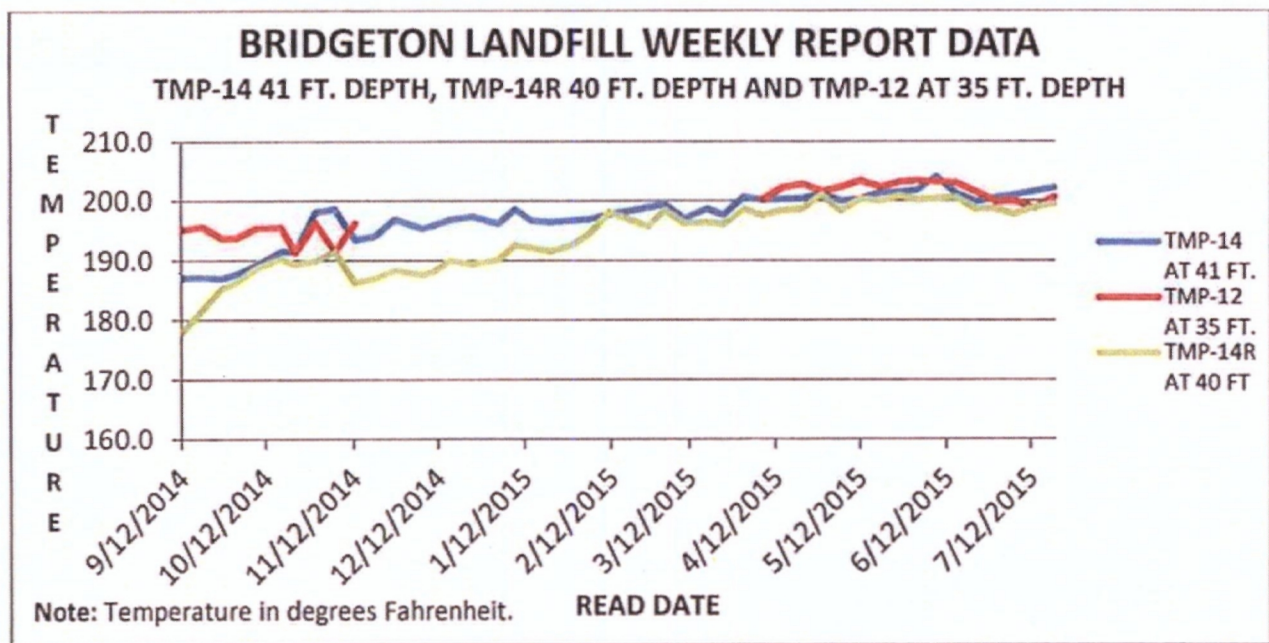


# State regulators demand new measures to contain landfill fire in Bridgeton

By [VÉRONIQUE LACAPRA \(/PEOPLE/V-RONIQUE-LACAPRA\)](#) · 10 HOURS AGO

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(/sites/kwmu/files/styles/x\_large/public/201508/2015-08-10-MDNR-Landfill-Temps.JPG)

*This graph from the Missouri Department of Natural Resources' letter to Republic Services shows gradually rising temperatures in the neck of the Bridgeton Landfill.*

MISSOURI DEPARTMENT OF NATURAL RESOURCES

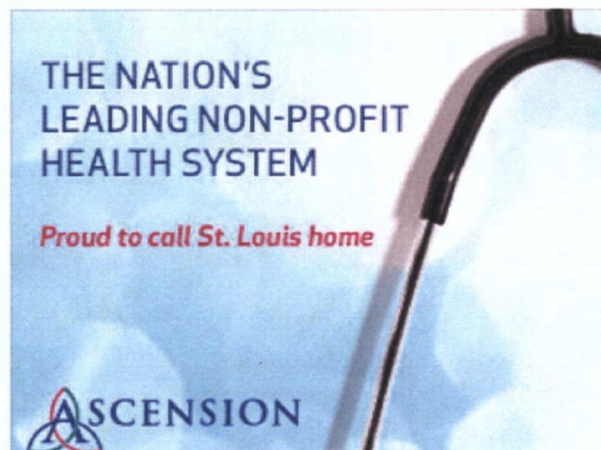




Missouri environmental officials are ordering the owner of a landfill in Bridgeton do more to prevent a smoldering subsurface fire there from spreading. The Missouri Department of Natural Resources wants to keep the underground reaction from coming into contact with radioactive waste stored nearby.

But Republic Services, the owner, insists the situation at the Bridgeton Landfill is under control.

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In a letter (<http://dnr.mo.gov/bridgeton/docs/bridgetoncappingletter081015.pdf>) to Republic Services dated Aug. 10, MDNR said the measures the company has taken to contain the fire in the landfill's south quarry have not worked and that, over the past year, temperatures below the surface in the landfill's narrow neck have slowly continued to rise. The state is also concerned new underground fires could develop in the landfill's north quarry, close to radioactive waste in the adjacent West Lake Landfill.



In a written statement, Republic Services said it welcomed MDNR's letter as a response to the company's Nov. 5, 2014, "corrective action

([http://mediad.publicbroadcasting.net/p/kwmu/files/styles/x\\_large/public/201508/2015-02-06\\_Landfill\\_south\\_quarry\\_IMG\\_3454\\_Katelyn\\_Petrin.jpg](http://mediad.publicbroadcasting.net/p/kwmu/files/styles/x_large/public/201508/2015-02-06_Landfill_south_quarry_IMG_3454_Katelyn_Petrin.jpg))

*This photo taken in February of the Bridgeton Landfill's south quarry shows the plastic cap and several gas extraction wells.*

CREDIT KATELYN MAE PETRIN | ST. LOUIS PUBLIC RADIO

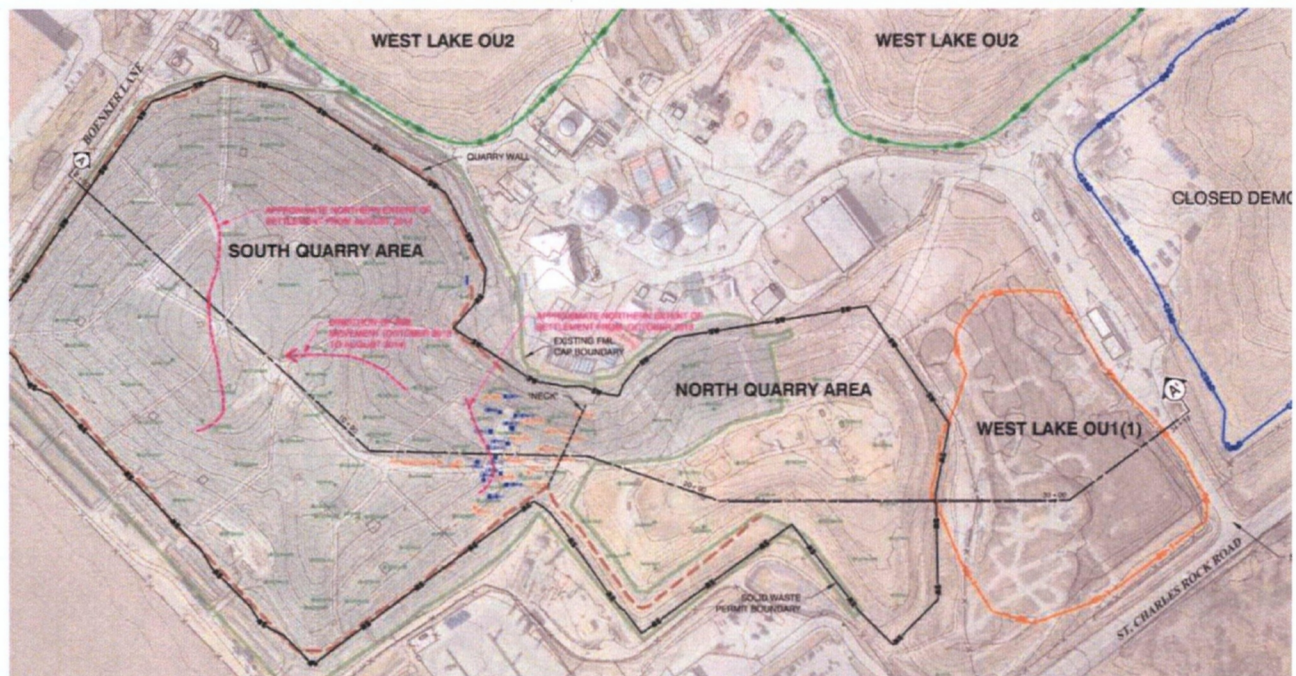
plan" (<http://mediad.publicbroadcasting.net/p/kwmu/files/2014-11-06-Bridgeton-Landfill-Corrective-Action-Plan.pdf>) for the landfill. "There are no changed conditions or problems



in the North Quarry," Republic wrote. "The overwhelming evidence indicates that the reaction's movement is in the opposite direction" — meaning that the underground fire is moving from north to south, away from known areas of radioactive waste.

Republic said it believes that some of the state's requests are "inspired by the timing of the State's ongoing litigation (<http://news.stlpublicradio.org/post/bridgeton-landfill-faces-fines-not-measuring-emissions>)" against the company and added that it would respond to MDNR in writing. "We expect to agree to the things that make sense and plan to communicate with them about the ones that do not," Republic said.

An underground fire has been smoldering in the south quarry of the Bridgeton Landfill for more than four years, producing foul-smelling fumes. Area residents have complained of asthma, nausea and other health problems, and want Republic Services to pay to relocate them.



([http://mediad.publicbroadcasting.net/p/kwmu/files/styles/x\\_large/public/201508/2014-09-West-Lake-Landfill-Republic-Services-clsp.JPG](http://mediad.publicbroadcasting.net/p/kwmu/files/styles/x_large/public/201508/2014-09-West-Lake-Landfill-Republic-Services-clsp.JPG))

*This excerpt from a Sept. 2014 map of the Bridgeton Landfill provided by Republic Services shows the north and south quarries and West Lake OU1, an area known to contain radioactive waste.*

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Below is a more detailed breakdown of some of the concerns raised by the director of MDNR's solid waste management program, Chris Nagel, in his letter (<http://dnr.mo.gov/bridgeton/docs/bridgetoncappingletter081015.pdf>) to Republic Services area environmental manager Brian Power — and what the state wants Republic to do about them.



## MDNR's concerns

- Subsurface temperatures in the neck of the landfill between the south and north quarries have been going up, not down. Specifically, three temperature probes (TMP-12, TMP-14, and TMP-14R) "have shown a slow, steady progression upward and are now reported at or slightly above 200°F." A nearby gas extraction well (GEW-110) has shown a similar upward trend in temperature. There's an excerpt of a map showing those locations, below, or you can see the full version here (<http://dnr.mo.gov/bridgeton/docs/attachment1drawingno1.pdf>).
- Republic Services has no "plan B" for containing the underground fire in the south quarry. The company's main strategy has been a heat extraction pilot study, but MDNR described the area of rising temperatures as seemingly "beyond the zone of influence" of that study. And "given the uncertainties" about the construction of a fire break (<http://news.stlpublicradio.org/post/state-says-bridgeton-landfill-owner-must-do-more-contain-fires-spread>) to separate the radioactive waste from the rest of the landfill, "Bridgeton Landfill has no additional measures approved and immediately implementable" to control the fire's spread.
- A new underground fire or "hot spot" could develop in the north quarry. The MDNR said that has happened before, between 1992 and 1994, when temperatures in the north quarry's east wall reached 800°F to 1,000°F.
- There have been signs that all is not well in the north quarry. The MDNR said that in June, seven areas in the north quarry had excessive methane emissions, and three areas were spewing contaminated wastewater, or leachate. "Movement of the smoldering fire has historically been preceded by a steam front which saturates the waste mass," MDNR explained.
- The "exact types and volumes of industrial waste material" in the north quarry are not known. The MDNR's letter doesn't say this, but a recent letter (<http://news.stlpublicradio.org/post/missouri-congressional-delegation-wants-army-corps-take-over-cleanup-west-lake>) written by members of Missouri's congressional delegation suggested that *both* the West Lake and Bridgeton landfills could contain radioactive material. The U.S. Environmental Protection Agency began testing for radioactive contamination in the north quarry in May, but results aren't expected until early next year.
- Waste from the north quarry could be moving south toward the underground fire. According to MDNR, "visual observations show the beginning of movement of waste materials" from the higher elevation north quarry toward the lower elevation neck. Since we don't yet know the extent of radioactive contamination in the north quarry that could be a matter of concern.





([http://mediad.publicbroadcasting.net/p/kwmu/files/styles/x\\_large/public/201508/2015-05-Heat-Extraction-Pilot-map-clsp.JPG](http://mediad.publicbroadcasting.net/p/kwmu/files/styles/x_large/public/201508/2015-05-Heat-Extraction-Pilot-map-clsp.JPG))

*This excerpt of a map from Republic Service's May 22 Expanded Heat Extraction Pilot Study shows the locations of the temperature probes and gas extraction highlighted in MNDR's letter as a zone of rising temperature.*

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## Actions MDNR wants Republic Services to take

Within 30 days of Aug. 10, 2015:

- Come up with "a technology or technologies" to keep the underground fire from moving north of the landfill's neck.
- Submit a plan to contain any new fires that may develop, including using inert gas injection for "hot spot" treatment.

By Dec. 1, 2015:

- Finish connecting existing gas extraction wells in the north quarry, to help control heat, pressure and gases if the subsurface fire moves north.
- Remove large, unused concrete pipes from the north quarry that could be allowing oxygen to infiltrate underground. Similar pipes



(<http://news.stlpublicradio.org/post/odors-expected-worsen-during-bridgeton-landfill-construction-0>) were removed from the south quarry in 2013.

- Enhance the plastic cap over the north quarry, to keep fire-starting oxygen out, and smelly — and potentially toxic — landfill gases in. Improving the cap would also help prevent leachate outbreaks that could contaminate ground and surface waters near the landfill.
- Keep oxygen levels below 1.5 percent by volume in gas extraction wells in the north quarry.
- Install survey pins in the north quarry to help monitor for any rapid waste reduction or cave-ins that "could indicate the presence and/or movement" of a subsurface fire.

*For science, environment and health news, follow Véronique LaCapra on Twitter: @KWMUScience (<https://twitter.com/KWMUScience>)*

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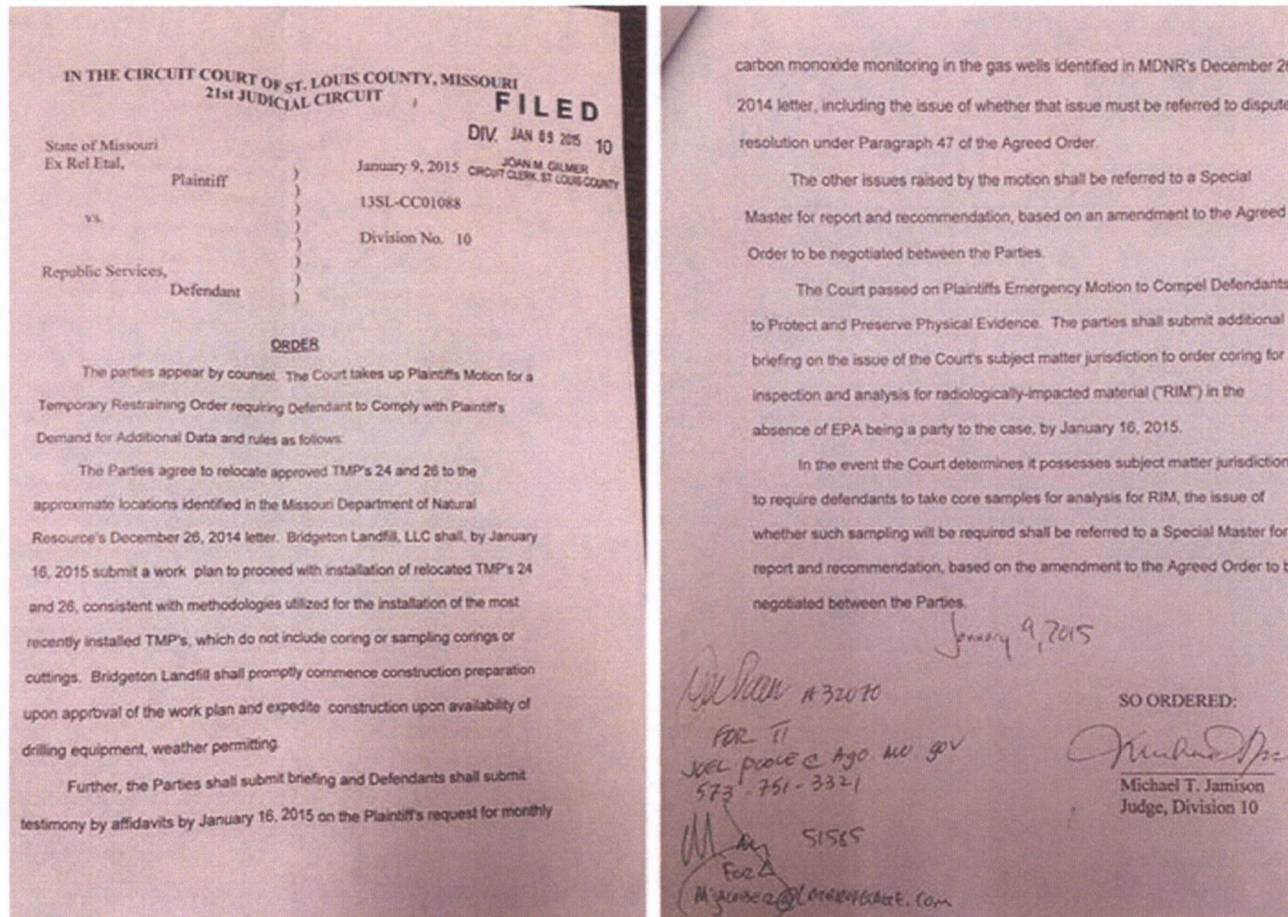
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